IN THE CLAIMS

Kindly amend claims 1, 3, 5, 6, 9, 10, 13, 17, 18 and 21. In addition, please delete claims 2, 3, 14 and 15 without prejudice to, or disclaimer of, the subject matter therein. Applicants respectfully submit that the subject matter of claims 2, 3, 14 and 15 now appear to be redundant. The changes to claims 5, 6, 9, 10 and 21 are related to formality, not patentability of these or other claims.

The following is a complete listing of revised claims with a status identifier in parenthesis.

LISTING OF CLAIMS

1. (Currently Amended) A symbol synchronizer comprising:

(a) means for deriving a control signal from received samples using a distance metric function; and

(b) timing adjustment means for producing a timing signal based on the control signal where the distance metric function is denoted as $\rho(x)$, and is defined as follows:

$$\rho(x) = x^2,$$

where x is related to a distance between a received sample and each possible symbol in a constellation.

2. (Cancelled)

3. (Cancelled)

4.   (Original)   The symbol synchronizer of claim 1 wherein the distance metric function is non-Euclidean.

5.   (Currently Amended)   The symbol synchronizer of claim 4 wherein the distance metric function, denoted as $\rho(x)$, is <u>further</u> defined as follows:

$$\rho(x) = \begin{cases} x^2 & \text{for} -k < x < k \\ k^2 & \text{otherwise} \end{cases}$$

<u>where k may be an integer</u>.

6.   (Currently Amended)   The synchronizer of claim 1 wherein the deriving means further ~~comprising a~~ <u>comprises</u> first distance metric computation means for computing a first set of metrics from first N consecutive received samples using the distance metric function with respect to all possible symbols.

7.   (Original)   The symbol synchronizer of claim 6 wherein the control signal is derived from a first difference obtained by subtracting a smallest metric from a larger metric among the first set of metrics.

8.   (Original)   The symbol synchronizer of claim 7 wherein the larger metric is a second smallest metric in the first set of metrics.

9.   (Currently Amended)   The symbol synchronizer of claim 7 wherein denoting current and [[the]] past first differences as $d\lambda_1$ and $d\lambda_2$, the control signal is derived from the value of $d\lambda_1 - d\lambda_2$.

10. (Currently Amended) The symbol synchronizer of claim 6 wherein the deriving means further ~~comprising a~~ <u>comprises</u> second distance metric computation means for computing a second set of metrics from second N consecutive received samples using the distance metric function, wherein there are P samples apart from the latest sample in the first N consecutive received samples to the earliest sample in the second N consecutive received samples and $P < N$.

11. (Original) The symbol synchronizer of claim 10 wherein denoting the smallest metrics among the first and second sets of metrics as λ_{min}^{I} and λ_{min}^{θ}, respectively, the control signal is derived from the value of $\lambda_{min}^{\theta} - \lambda_{min}^{I}$.

12. (Original) The symbol synchronizer of claim 10 wherein denoting the difference between the smallest and the second smallest metrics among the first set of metrics as $\Delta\lambda^{I}$ and that among the second set of metrics as $\Delta\lambda^{\theta}$, the control signal is derived from the value of $\Delta\lambda^{\theta} - \Delta\lambda^{I}$.

13. (Currently Amended) A method for synchronizing a communication channel, comprising the steps of:

(a) receiving samples;

(b) deriving a control signal from the received samples using a distance metric function; and

(c) producing a timing signal based on the control signal <u>where the distance metric function is denoted as $\rho(x)$, and is defined as follows:</u>

$$\rho(x) = x^2,$$

where _x_ is related to a distance between a received sample and each possible symbol in a constellation.

14.   (Cancelled)

15.   (Cancelled)

16.   (Original)   The method of claim 13 wherein the distance metric function is non-Euclidean.

17.   (Currently Amended)   The method of claim 16 wherein the distance metric function, denoted as $\rho(x)$, is defined as follows:

$$\rho(x) = \begin{cases} x^2 & \text{for} -k < x < k \\ k^2 & \text{otherwise} \end{cases}$$

where _k_ may be an integer.

18.   (Currently Amended)   The method of claim 13 wherein step (b) further comprises the step of computing [[the]] a first set of metrics from first _N_ consecutive received samples using the distance metric function with respect to all possible signal constellations.

19.   (Original)   The method of claim 18 wherein the control signal is derived from a first difference obtained by subtracting a smallest metric from a larger metric among the first set of metrics.

20.   (Original)   The method of claim 19 wherein the larger metric is a second smallest metric in the first set of metrics.

21. (Currently Amended) The method of claim 19 wherein, denoting current and the past first differences as $d\lambda_1$ and $d\lambda_2$, the control signal is derived from the value of $d\lambda_1 - d\lambda_2$.

22. (Original) The method of claim 18 wherein step (b) further comprises the step of computing a second set of metrics from second N consecutive received samples using the distance metric function, wherein there are P samples apart from the latest sample in the first N consecutive received samples to the earliest sample in the second N consecutive received samples and $P < N$.

23. (Original) The method of claim 22 wherein denoting the smallest metrics among the first and second sets of metrics as λ_{min}^{I} and λ_{min}^{θ}, respectively, the control signal is derived from the value of $\lambda_{min}^{\theta} - \lambda_{min}^{I}$.

24. (Original) The method of claim 22 wherein denoting the difference between the smallest and the second smallest metrics among the first set of metrics as $\Delta\lambda^{I}$ and that among the second set of metrics as $\Delta\lambda^{\theta}$, the control signal is derived from the value of $\Delta\lambda^{\theta} - \Delta\lambda^{I}$.